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# Five-minute settlement and global settlement

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**October 2019**

Market readiness strategy

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# Important notice

## PURPOSE

The Market Readiness Strategy is the overarching plan to guide AEMO and NEM participants' readiness activities required for five-minute settlement and global settlement implementation.

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## VERSION CONTROL

Version	Release date	Changes
0.1	30/08/2019	Draft released to the 5MS/GS Readiness Working Group for comment
1.0	30/10/2019	Final document published

# Executive summary

AEMO and National Electricity Market (NEM) participants are currently implementing the five-minute settlement (5MS) and global settlement (GS) market reforms and the implementation program has entered its market readiness phase.

The National Electricity Rules (NER) changes for 5MS and GS have amended or introduced new regulatory obligations on certain NEM participants and AEMO. They require significant updates or changes to market procedures, metering and market and participants' systems at various times. AEMO has a key coordination role, through collaboration with its industry working groups, to ready industry and itself for the various system and market "go-live" dates.

This paper sets out AEMO's market readiness approach and incorporates feedback from industry stakeholders. It is intended to inform NEM participants' own readiness programs and provide a foundation for engaging on market readiness matters throughout the 5MS/GS implementation process.

The market readiness strategy is the overarching plan for managing, coordinating, informing, monitoring and reporting both AEMO's and NEM participants' operational preparedness for 5MS and GS. It particularly relates to the business process and IT system changes necessary for a smooth transition to the new market arrangements.

At a high level, the Market Readiness Strategy:

- describes the current NEM settlement operations
- explains the scope of market readiness and how market readiness activities will support the transition to 5MS and GS
- sets out how market readiness will be planned and implemented to facilitate a smooth cutover to both 5MS and GS.

Market readiness activities are intended to address readiness challenges and support the prudent implementation of the 5MS/GS changes. This is to safeguard the integrity of NEM processes across the various IT system go-lives and market starts, given the market's size, value, complexity and need for continuous operation.

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# 1. Introduction

This chapter explains the Australian Energy Market Operator's (AEMO) five-minute settlement (5MS) and global settlement (GS) implementation program. It then details the purpose and structure of the 5MS and GS market readiness strategy for the national electricity market (NEM).

## 1.1 AEMO's 5MS and GS implementation program

The Australian Energy Market Commission (AEMC) made the 5MS rule<sup>1</sup> in November 2017 and AEMO's extensive 5MS implementation program began in early 2018.<sup>2</sup> GS activities were incorporated into the program when the GS rule<sup>3</sup> was made in December 2018 because aligning 5MS and GS implementation activities is intended to minimise costs for AEMO and market participants.

The program covers the procedural, IT system and market readiness arrangements needed to implement 5MS and GS using the following workstreams:

- Procedures – defines and implements the required changes to market procedures<sup>4</sup>
- Systems – designs, develops, tests, and implements changes to AEMO's market systems<sup>5</sup>
- Readiness – coordinates, assists and prepares AEMO and participants for the transition to 5MS and GS.<sup>6</sup>

AEMO's 5MS and GS implementation program has entered the market readiness phase of the project. This paper relates only to market readiness.

## 1.2 Purpose of the market readiness strategy

This market readiness strategy has been developed to realise the market readiness objective (see section 2.2). It is the overarching plan to guide AEMO and NEM participants' readiness activities and sets out the approach for:

- managing
- coordinating
- informing
- monitoring and
- reporting on

both AEMO's and NEM participants' operational preparedness for 5MS and GS. It particularly relates to the business process and IT system changes necessary for a smooth transition to the new market arrangements.

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<sup>1</sup> *National Electricity Amendment (Five minute settlement) Rule 2017 No. 15*, Australian Energy Market Commission, available at: <https://www.aemc.gov.au/rule-changes/five-minute-settlement>, as further amended by the *National Electricity Amendment (Five minute settlement and global settlement implementation amendments) Rule 2019 No. 7*, available at <https://www.aemc.gov.au/rule-changes/five-minute-settlement-and-global-settlement-implementation-amendments>

<sup>2</sup> Details of AEMO's 5MS and GS implementation program: <http://aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement>

<sup>3</sup> *National Electricity Amendment (Global settlement and market reconciliation) Rule 2018 No. 14*, Australian Energy Market Commission, available at: <https://www.aemc.gov.au/rule-changes/global-settlement-and-market-reconciliation>, as further amended by the *National Electricity Amendment (Five minute settlement and global settlement implementation amendments) Rule 2019 No. 7*, op cit.

<sup>4</sup> Details of the procedures workstream: <http://aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement/Procedures-Workstream>

<sup>5</sup> Details of the systems workstream: <https://aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement/Systems-Workstream>

<sup>6</sup> Details of the readiness workstream: <https://aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement/Readiness-Workstream>

## 1.3 Background

### 1.3.1 Five-minute settlement

The 5MS rule has a commencement date of 1 July 2021 for the substantive amendments. The 5MS rule aligns operational dispatch and financial settlement at five minutes, thereby reducing the time interval for financial settlement in the NEM from 30 minutes to five minutes.

Implementation of 5MS requires AEMO and NEM participants to make considerable changes to metering, IT systems and contracts prior to the commencement date. From 1 July 2021, the following processes will occur on a five-minute basis:

- Bidding and offering into the NEM
- Settlement
- Intervention pricing
- Calculation of trading amounts
- Calculation of the cumulative price threshold.

Implementing 5MS requires AEMO and various NEM market participants to:

- Review and where necessary update existing contract terms and conditions
- Upgrade metering to provide five-minute granularity data (where required)
- Upgrade IT systems to store and process five-minute granularity data.

### 1.3.2 Global settlement

The GS rule has a commencement date of 6 February 2022 for most substantive amendments.

The GS rule changes the settlement of the demand side of the wholesale electricity market to a global settlement framework. This is a move away from the 'settlements by difference' approach which has been in place since the start of the NEM.

The GS rule sets out:

- How unaccounted for energy (UFE) is calculated and allocated
- The treatment of unmetered loads
- Metering responsibilities at network connection points.

AEMO must allocate and report on UFE by 1 July 2021, although retailers' financial responsibility for UFE does not commence until 6 February 2022. To facilitate the allocation and reporting of UFE, by 1 July 2021 metering data providers (MDPs) will need to:

- give AEMO metering data for local retailer (LR) loads
- notify AEMO of the agreed consumption of non-contestable unmetered loads.

The GS rule also requires AEMO to produce an *annual* UFE trends report from March 2022. This report will analyse the sources of UFE in each local area and provide recommendations on improving UFE visibility and reducing UFE.

Implementation of GS is broadly aligned with 5MS to minimise costs for AEMO and market participants.

## 1.4 Context

Market readiness activities are intended to support the prudent implementation of the 5MS/GS changes. This is to safeguard the reliability of the NEM across the various IT system go-lives and rule commencements, especially given the market's size, value, complexity and continuous operation.

The various implementation challenges are outlined below, and the following chapters explain how market readiness is intended to address these challenges.

### 1.4.1 Scale

The 5MS and GS reforms involve major changes to the industry's metering, settlement and dispatch processes. In terms of size and value, 186TWh of electricity was transacted across the NEM in FY2018-19 representing total settlements of \$18.3 billion.<sup>7</sup>

### 1.4.2 Complexity – coordinating diverse participants

Different NEM participants have differing 5MS/GS requirements depending on their role,<sup>8</sup> size and level of engagement. This will be reflected in different levels of effort and time committed to ensure preparedness for the 5MS/GS market reforms.

Coordinating the wide variety of participants' 5MS/GS activities will be a readiness challenge, as many participants have dependencies on other participants' actions. Some examples of dependencies are:

- AEMO and retailers are dependent on MDPs delivering 5-minute data for type 1-3 meters (and relevant type 4 meters) by 1 July 2021 for five-minute settlement and reconciliation purposes respectively.
- MDPs are dependent on metering providers (MPs) to ensure that type 1-3 meters (and relevant type 4 meters) are capable of and configured to provide five-minute data by 1 July 2021.
- Retailers are dependent on distribution network service providers (DNSPs) for the identification and profiling of non-contestable unmetered load for the accurate calculation of UFE, which will contribute directly to their settlement invoices under Global Settlement.

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<sup>7</sup> AEMO Annual Report 2019, p. 21. See: <https://aemo.com.au/About-AEMO/Annual-report>

<sup>8</sup> Examples of relevant participant types include: generator, local retailer, independent retailer, network service provider, metering data provider etc.



# 2. Market readiness framework and objective

## 2.1 5MS and GS market readiness framework

Figure 1 sets out the 5MS and GS market readiness framework. Its features are:

- A guiding objective and clear scope for 5MS and GS market readiness
- A strategy for realising the market readiness objective
- Detailed market readiness plans underpinning the strategy, including specific activities and timeframes
- Ongoing stakeholder engagement, implementation and readiness activities, and readiness reporting and management throughout the market readiness phase of the project.

Figure 1 5MS and GS market readiness framework



## 2.2 Market readiness objective

Market readiness for 5MS and GS relates to the business process and IT system changes by both AEMO and participants necessary for a smooth transition to the new market arrangements. These implementation activities must be designed to minimise any risk of disruption to service delivery to NEM end-use customers. Accordingly, the market readiness objective for the 5MS and GS market reforms is:

*To implement all participant and AEMO preparatory activities required for successful 5MS and GS commencements while facilitating the uninterrupted and reliable operation of the NEM.*

Relevant 5MS and GS **commencements** are:

- 5MS on 1 July 2021 (all 'Excluded' metering installations<sup>9</sup> must record and provide 5-minute data)
- Unaccounted for energy (UFE) reporting from 1 July 2021<sup>10</sup>
- GS on 6 February 2022 (financial responsibility for UFE)
- Non-Excluded new and replaced<sup>11</sup> metering installations must record and provide 5-minute data by 1 December 2022.

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<sup>9</sup> Excluded metering installations are types 1, 2, 3 and 7, along with type 4 meters at a transmission network connection point, or distribution network connection point where the relevant financially responsible Market Participant is a Market Generator or Small Generation Aggregator.

<sup>10</sup> Metering data and standing data changes needed to support the calculation and allocation of UFE will be detailed in the metering transition plan, including the introduction of non-contestable un-metered loads.

<sup>11</sup> If installed or replaced on or after 1 December 2018 (1 December 2019 for type 4A installations)

# 3. 5MS and GS market readiness strategy

This chapter firstly lays the foundation for the market readiness strategy by:

- Setting out the guiding principles for 5MS and GS market readiness work.
- Establishing its scope in relation to 5MS and GS

It then describes the components of the market readiness strategy and how these components will be supported by detailed plans.

## 3.1 Market readiness principles for 5MS and GS

The following principles will underpin all aspects of the 5MS and GS market readiness work:

### 1. Adherence to the market readiness objective

All 5MS and GS preparatory activities will be designed to minimise the risk of disruption to NEM customers and participants.

### 2. Shared commitment to readiness for 'go-live'

AEMO and NEM participants will perform all necessary activities so that each organisation:

- Complies with its 5MS and GS obligations from the go-live dates
- Can effectively operate in the NEM, in compliance with the NER, at all times.

### 3. Collaborative approach to market readiness planning and execution

AEMO will develop the market readiness strategy, including the supporting strategies and plans. It will discuss proposed approaches with NEM participants and seek input before finalising them.

AEMO and NEM participants will together coordinate market readiness activities, provide visibility of readiness issues and risks and appropriately plan for contingencies. They will work towards finding transition solutions that accord with the commencement dates even if not mandated by the NER.

### 4. Each party is responsible for their own readiness

Each NEM participant and AEMO is responsible for developing and implementing their own organisational readiness program. This includes having regard to the key activities and dates set out in the strategies and plans that support the market readiness strategy.

For AEMO, this includes:

- Developing the systems and processes it is responsible for under statutory instruments
- Providing NEM participants with the necessary information, documentation and access to enable them to interact with these systems and processes
- Coordinating and reporting on industry-wide preparations for "go-live".

For NEM participants, this includes:

- Developing their own systems and processes, including relevant vendor programs, to comply with SMS and GS market arrangements
- Ensuring they have the necessary commercial arrangements in place at “go-live”
- Performing preparatory activities (such as meter reconfiguration) prior to relevant market start timeframes
- Reporting on readiness matters that may affect them and/or other participants.

#### **5. Communicate readiness issues and risks as early as possible in writing**

Issues and risks that may affect the readiness of NEM participants and/or AEMO, are to be communicated to AEMO as early as possible in writing. This will enable AEMO, with support from the readiness working group (RWG) where relevant, to:

- Undertake a timely impact assessment to establish the materiality of the issue or risk
- Communicate the issue or risk to the industry via the appropriate stakeholder forum (subject to any confidentiality considerations).

#### **6. Open and honest readiness reporting**

When reporting on the progress of their organisation’s readiness activities, each NEM participant and AEMO is expected to prepare their reports in an open and honest manner based on information that is current as at the time of reporting.

AEMO will provide questionnaire templates and guidance on readiness reporting criteria to assist participants.

#### **7. Appropriate handling of confidential and commercially sensitive information by AEMO**

In their readiness reporting, NEM participants should identify any information that they consider to be confidential (other than data that is already established under the NER as confidential information). If necessary, AEMO will clarify the nature of any confidentiality claim with a participant.

In respect of any confidential information disclosed to it by a participant in relation to market readiness, AEMO will treat that information as protected information in accordance with the National Electricity Law, Part 5, Division 6. This includes not disclosing the identity of a participant without their consent where a general market readiness matter which concerns that participant is discussed at industry forums or with other parties.

#### **8. AEMO to explain readiness decisions to NEM participants**

AEMO will explain its market readiness decision-making processes and reasons for its decisions to NEM participants, subject to any confidentiality considerations.

## 3.2 Market readiness strategy scope

At a high level, implementing 5MS and GS variously requires market participants to:<sup>12</sup>

- Make changes across their retail and wholesale IT systems
- Review and where necessary update existing contract terms and conditions
- Upgrade metering to provide five-minute granularity data (where required)
- Provide AEMO with tier 1 retailer metering data
- Provide AEMO with metering data and standing data for non-contestable unmetered loads.

AEMO, as the market operator, needs to make changes to its market systems to implement 5MS and GS, specifically:

- Reallocations – upgrade to AEMO’s system to support 5-minute reallocations
- Bidding and dispatch – upgrade to AEMO’s systems to support 5-minute bids and offers
- B2M APIs – introduction of API interface capability to provide an optional, alternative interface approach
- MDM platform – upgrade of AEMO’s meter data management system to support meter data processing for 5MS and GS
- NEM settlements – upgrade to AEMO’s settlements system to support 5MS and GS

Broadly, market readiness as discussed in this strategy applies to the 5MS and GS readiness of NEM operations. It does not relate to each individual participant’s own readiness for these NEM reforms because all participants are responsible for their own 5MS and GS preparations.

### 3.2.1 In scope

The scope of 5MS/GS market readiness, as derived from the objective and the key changes noted above, relates to:

- Transition and cutover planning, execution and implementation. This includes support activities such as contingency planning, cutover decision-making and transitioning to “business as usual”
- Industry testing in a staging and/or pre-production environment
- Co-ordinated market trials
- Readiness surveying and reporting
- Readiness and industry risk management, including governance associated with contingency planning and issues management as required
- Metering accreditation updates.

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<sup>12</sup> For further information on what different participants need to do to be ready for 5MS and GS, see: <https://aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement>

See also: <https://www.aemc.gov.au/sites/default/files/content/ab97ffb8-f04d-4659-99cb-620ad099834f/4-Five-minute-settlement-Implementation-Info-sheet-28-Nov-17.pdf>

Preparing for a smooth transition to 5MS and GS means that readiness activities need to be planned and executed by the formal commencement dates.<sup>13</sup> Some examples of activities that are necessary for the 5MS and GS 'go-live' dates and are therefore within the scope of market readiness include:

- By 1 July 2021, MPs will (through arrangements with metering coordinators) have configured or replaced Types 1-3 and the appropriate Type 4 meters so that these meters can deliver five-minute metering data.
- By 1 July 2021, MDPs will provide non-contestable unmetered loads in MSATs so that these loads can be excluded from UFE calculations.
- By 1 July 2021, AEMO will have systems and processes in place to enable it to publish UFE.
- By 1 July 2021, scheduled and semi-scheduled generators will have systems and processes in place to submit five-minute offers into the NEM.
- By 6 February 2022, electricity retailers will have systems and processes in place to receive and reconcile UFE allocation data.

### 3.2.2 Out of scope

Areas that are *outside* the scope of this market readiness strategy are:

- Consequential activities: Any consequential changes and/or testing that NEM participants must perform on their supporting business systems and processes to give effect to the changes they have made to their market interfacing systems.
- Other regulatory obligations: Any other regulatory obligations NEM participants may have outside of the 5MS or GS rule changes, such as other NER changes or new jurisdictional regulations.
- Resolution of 5MS or GS procedural or technical matters: these matters are managed through the procedures and systems workstreams.

### 3.2.3 Where scope is uncertain

As noted above, market readiness in this strategy applies to the overall 5MS and GS readiness of the NEM, not to individual participant's own readiness.

However, individual participant readiness will be considered as part of market readiness if an issue arises that:

- is systemic and affects multiple participants
- affects overall NEM operations.

In these situations, the Readiness Working Group (see section 4.4) will assess the issue, decide whether it is a readiness matter and recommend next steps for its resolution.

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<sup>13</sup> Relevant 5MS and GS commencements are:

- 5MS on 1 July 2021 (all 'Excluded' metering installations must record and provide 5-minute data)
- Unaccounted for energy (UFE) reporting from 1 July 2021
- GS on 6 February 2022 (financial responsibility for UFE)
- Non-Excluded new and replaced metering installations must record and provide 5-minute data by 1 December 2022.

### 3.3 Components of 5MS and GS market readiness

Table 1 explains each of the components of 5MS and GS readiness that are required to realise the market readiness objective and its coverage. The components relate to both AEMO and participants so that NEM operations can be successfully supported at go-live.

**Table 1 5MS and GS market readiness components**

Component	Coverage
<b>Market readiness planning</b>	<ul style="list-style-type: none"> <li>• Scoping and planning of readiness activities to meet the 5MS and GS market readiness objective. Includes AEMO, in collaboration with NEM participants, developing the Market Readiness Strategy, including associated plans, checklists and reporting templates.</li> <li>• Development of market readiness strategy supporting documentation (see Figure 2).</li> </ul>
<b>Readiness reporting management</b>	<ul style="list-style-type: none"> <li>• Development of objective readiness criteria, including establishing which participants and what capability needs to be ready for each market system go-live</li> <li>• Regular reporting against the readiness criteria by affected participants.</li> <li>• Analysis and assessment of reported results by AEMO, including confirmation of operational preparedness for “go-live”.</li> </ul>
<b>Risk and contingency management</b>	<ul style="list-style-type: none"> <li>• Risk and issue identification and management</li> <li>• Contingency planning</li> <li>• Proactive responses by AEMO and participants to identified issues (whether identified through reporting or raised independently), such as an individual participant not being ready for a program milestone.</li> <li>• Readiness issue and risk assessments, including development of contingency options and plans.</li> <li>• Escalation of issues as required.</li> </ul>

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**Transition and cutover planning and execution**

- Development of the industry transition and cutover strategy, detailing the steps, activities, timeframes and responsibilities in moving from current NEM operations to 5MS and GS.
- Planning and monitoring of participants' and AEMO's transition activities and rollouts in line with the agreed strategies, including the integration with readiness criteria reporting. For example, standing data updates etc.
- Systems cutover planning and execution, including coordination of:
  - Participant cutovers
  - System go-live co-ordination.
- Post-cutover activities - activities that do not need to be completed for cutover but do need to be done soon after. This will include AEMO providing heightened support for participants.

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**Industry testing and market trials**

- Planning, execution and management of activities that enable industry testing and/or market trials for the various system go-lives and market starts. Includes setting the timing of 5MS and GS industry testing and market trials, as appropriate.
- AEMO and NEM participants will test their systems against the updated procedures and their ability to communicate with each other.
- Environment support and availability, such as:
  - a dedicated 5MS staging environment with limited functionality. Participants will be able to test their own system changes as software becomes available. Release drops will be published.
  - pre-production for industry testing and coordinated market trials.
- Capability release and timing.

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**Metering accreditation updates**

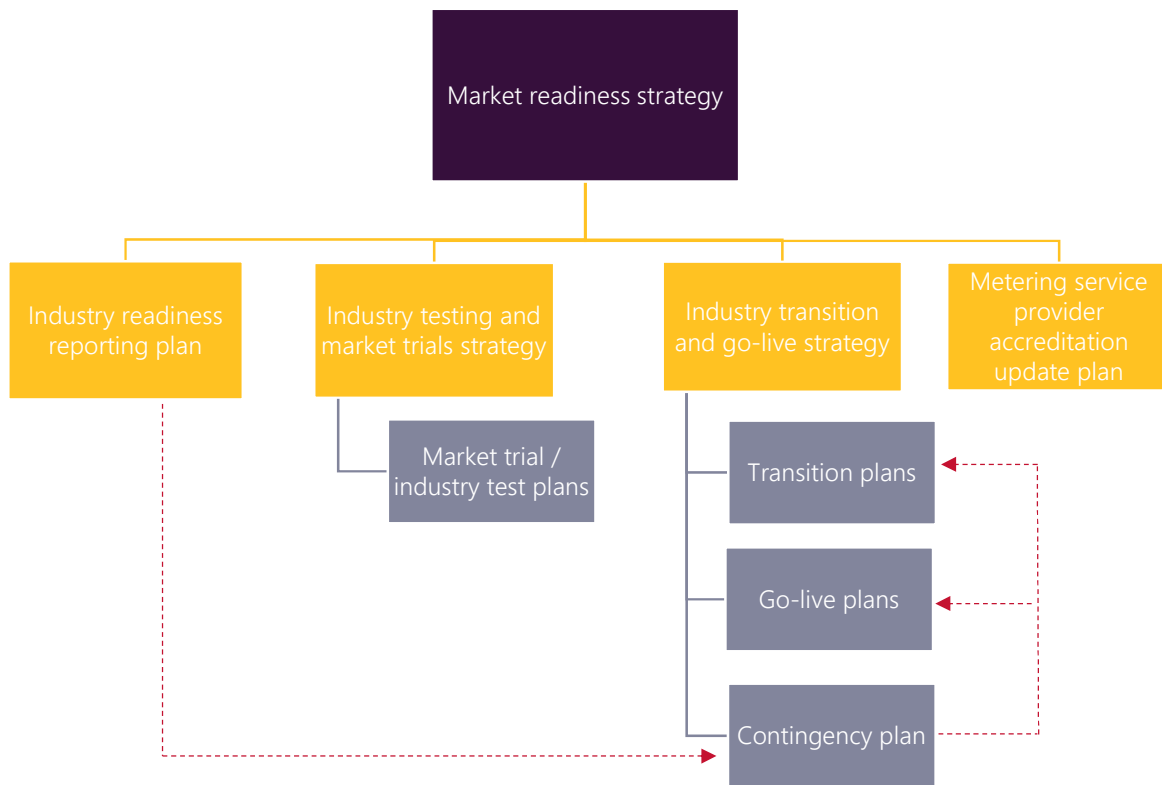
- Establishing the timing and scope of and approach to accreditation update requirements. *Note that the extent of accreditation updates required by an individual MSP is dependent on the level of change required to its systems and processes.*
  - Monitoring accreditation update progress against agreed timeframes.
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### 3.4 Market readiness strategy supporting documents

Figure 2 shows how the market readiness strategy is supported by a series of documents which each cover a specific area of readiness. For each supporting document, Table 2 describes its purpose and explains which market readiness components it covers.

**Figure 2 Market readiness strategy – supporting documents**



**Table 2 Relationship between market readiness strategy supporting documents and market readiness components**

<b>Document</b>	<b>Purpose and scope</b>	<b>Relevant market readiness component(s)</b>
<b>Market readiness strategy</b>	Overarching document which provides the overall strategy for how market readiness activities will support the industry's change to 5MS and GS, and how market readiness will be planned and realised.	<ul style="list-style-type: none"> <li>• Market readiness strategy and planning</li> </ul>
<b>Industry readiness reporting plan</b>	Details the readiness reporting requirements that will enable regular assessments of AEMO's and industry's 5MS and GS readiness, including recommended contingency options.	<ul style="list-style-type: none"> <li>• Readiness reporting management</li> <li>• Risk and contingency management</li> </ul>
<b>Industry testing and market trial strategy</b>	Sets out the high level approach and principles associated with testing and trial activities.	<ul style="list-style-type: none"> <li>• Market readiness planning</li> <li>• Industry testing and market trials</li> </ul>
<b>Industry test/market trial plans</b>	In-line with the appropriate test approach, each plan may include the detailed test scenarios, activities, conditions, and data requirements associated with each test phase, with completion and defect reporting as appropriate.  <i>Will align to the transition and cutover strategy.</i>	<ul style="list-style-type: none"> <li>• Industry testing and market trials</li> </ul>
<b>Transition and go live strategy</b>	Sets out the high level approach and principles associated with transition and cutover activities, including industry co-ordination.	<ul style="list-style-type: none"> <li>• Market readiness planning</li> <li>• Transition and cutover planning and execution</li> <li>• Risk and contingency management</li> </ul>
<b>Industry transition, cutover and contingency plans</b>	Sets out the detailed elements associated with transition and cutover activities and contingency planning.  <i>There will be a plan for each transition and cutover as well as a separate industry contingency plan</i>	<ul style="list-style-type: none"> <li>• Transition and cutover planning and execution</li> <li>• Risk and contingency management</li> </ul>
<b>Metering service provider accreditation update plan</b>	Details the activities required for Metering Service Providers to update their accreditation where necessary. Will include AEMO's approach to scheduling accreditation updates.	<ul style="list-style-type: none"> <li>• Metering accreditation updates</li> </ul>

# 4. Market readiness strategy implementation

This chapter explains how AEMO and participants will collaboratively implement the 5MS and GS market readiness strategy.

## 4.1 AEMO's market readiness implementation approach

In accordance with the market readiness principles and in support of the market readiness strategy, AEMO's overall approach to 5MS and GS market readiness is to undertake the following roles:

- Maintain the 5MS/GS program consultative forum (PCF) and establish and maintain the readiness working group (RWG) (and subsidiary focus groups) to support market readiness strategy, planning and coordination for 5MS and GS, including development of market readiness strategies and plans
- Support industry testing by providing a staging environment in addition to the standard industry testing performed in pre-production
- Run coordinated market trials
- Perform industry readiness monitoring and reporting. This includes managing issues, risks and actions, as well as developing contingency approaches.

## 4.2 Overview of readiness activities for 5MS and GS

Figure 3 shows AEMO's key regulatory, systems development and industry environments program milestones for the 5MS and GS market reforms. It also shows the provisional major milestone timing for the program's high-level market readiness activities, including the proposed window for market trials to occur. These milestones will be finalised as part of the development of the Industry transition and go-live strategy.

Figure 3 Key SMS and GS program milestones

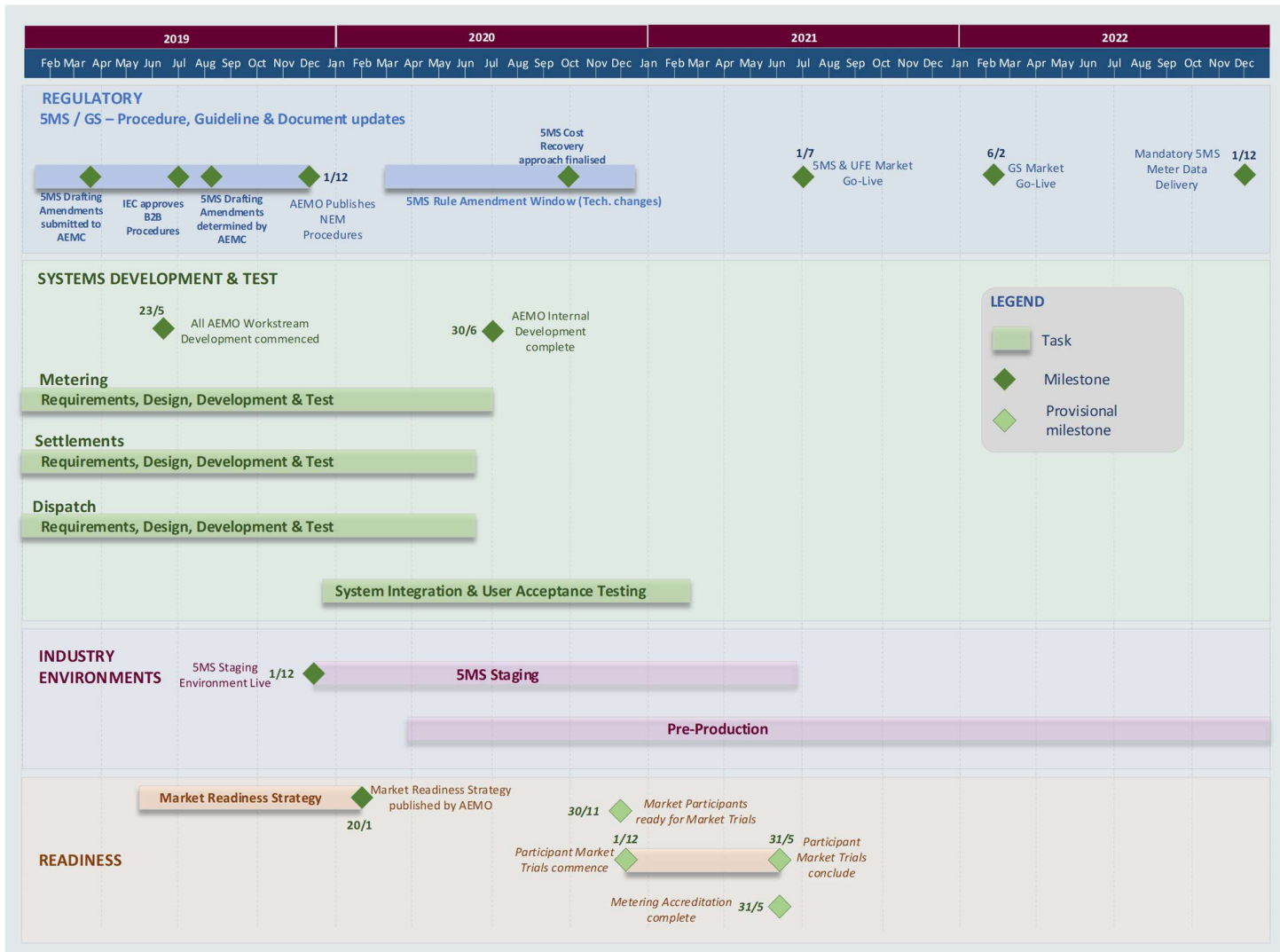


Table 3 explains the key milestones groupings.

**Table 3 5MS/GS market readiness milestone descriptions**

<b>Milestone type</b>	<b>Description</b>
<b>Regulatory</b>	Key regulatory milestones for 5MS and GS implementation
<b>Systems development and test</b>	AEMO’s market systems development and testing milestones
<b>Industry environments</b>	<p><b>Staging environment:</b> Supports AEMO and industry in assessing product quality before it is released into pre-production for industry testing and market trials. It is not a market trial or end-to-end environment.</p> <p><b>Pre-production:</b> AEMO supported environment which reflects planned production state. Industry testing and market trials are conducted in this environment. Software is released to this environment has completed all AEMO internal testing.</p>
<b>Readiness</b>	Key 5MS/GS market readiness milestones. Accreditation and market trial provisional milestones will be made final after industry consultation through the Metering accreditation update plan and the Industry testing and market trials strategy respectively.

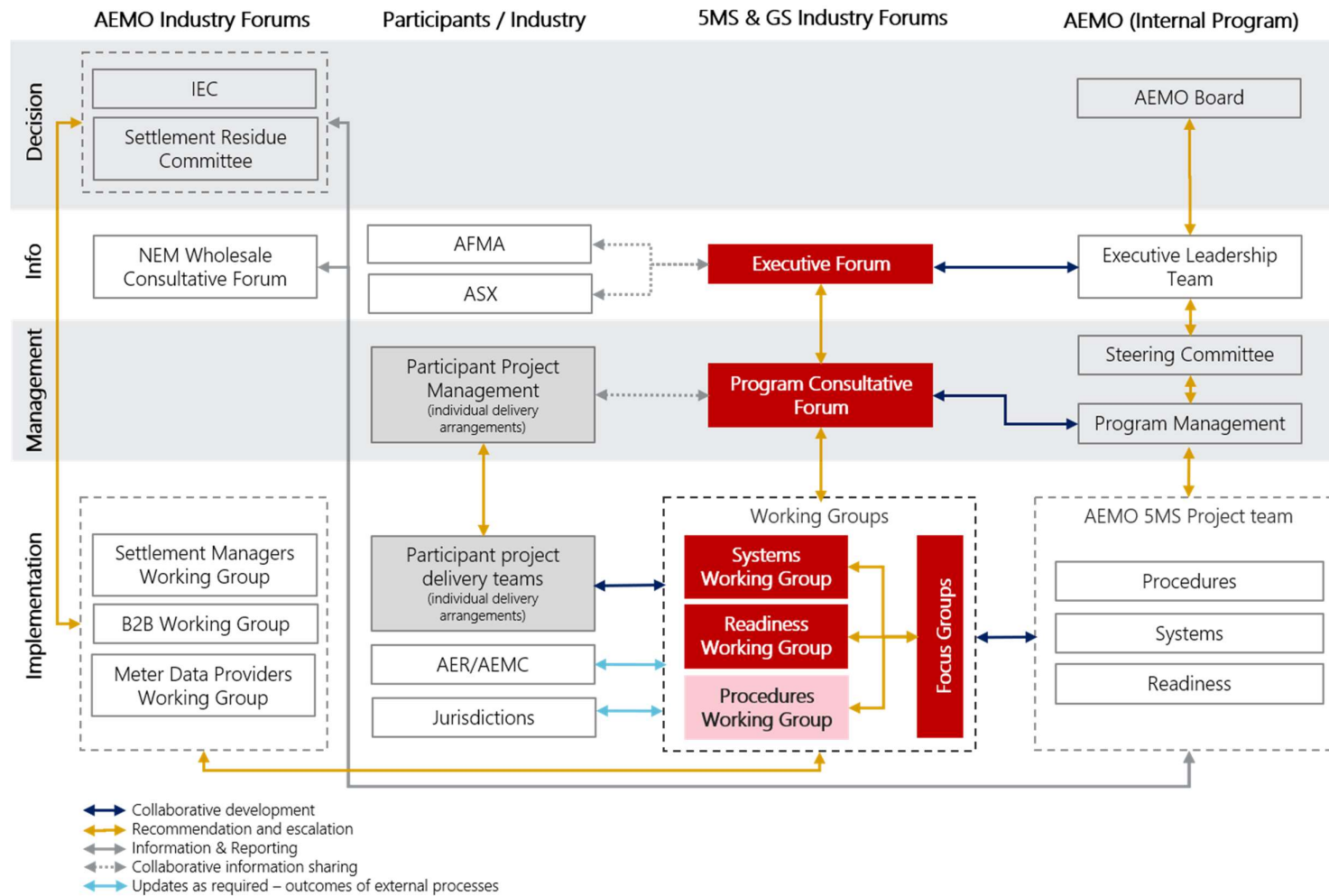
### 4.3 5MS and GS readiness workstream stakeholder engagement

AEMO’s existing 5MS and GS program stakeholder engagement framework will be used to implement the market readiness strategy. It comprises the PCF supported by various working groups, including the RWG, and focus groups (Figure 4).

The PCF is the primary forum for program coordination and communication between AEMO and industry program teams, whereas the executive forum provides for the appropriate level of executive oversight and escalation of issues.

The RWG helps to coordinate 5MS/GS readiness activities across the industry and is the main stakeholder forum for direct industry planning and execution of readiness activities. Further information on the purpose, scope and operation of the RWG is found in section 4.4.

Figure 4 SMS and GS industry engagement overview



## 4.4 Readiness working group

5MS and GS readiness work will be supported by the Readiness Working Group (RWG), an open forum for industry participants led by AEMO. It is the main stakeholder forum for coordinating, assisting and preparing AEMO and participants for the transition to 5MS and GS, that is implementing the market readiness strategy. Terms of reference for the RWG were consulted on in May 2019 and the first RWG was convened in June 2019.<sup>14</sup>

The RWG's scope includes contributing to the:

- development of key market readiness strategies and plans
- coordination of detailed activities to be delivered, as set out in market readiness plans
- identification, mitigation and resolution of market readiness related risks and issues
- review of periodic reports on the progress of market readiness activities for the whole industry and the identification of system risk / concerns

Given the broad nature of the RWG's scope, subordinate focus groups may be formed to contribute to specific subject matter areas. For example, there will be an Industry Testing Working Group to support industry testing and market trial activities. Additionally, joint focus groups between RWG and the systems working group (SWG) and/or procedures working group (PWG) members may also be formed to manage areas of cross-dependency, such as transition planning. Table 4 expands on other types of interactions the RWG can expect to have with various 5MS and GS industry forums as part of its work.

**Table 4 Scope of RWG interactions with various 5MS/GS industry forums**

5MS/GS industry forum	Scope of RWG interactions
<b>Program Consultative Forum</b>	RWG to: <ul style="list-style-type: none"> <li>• Monitor &amp; report on milestone progress to PCF</li> <li>• Escalate issues to PCF</li> <li>• Provide advice to PCF</li> <li>• Respond to actions and questions from PCF</li> </ul>
<b>Systems Working Group and Procedures Working Group</b>	RWG to: <ul style="list-style-type: none"> <li>• Exchange information with other working groups</li> <li>• Assign actions to and complete actions from other working groups</li> <li>• Manage areas of cross-dependency with other working groups</li> </ul>
<b>Focus groups</b> (for example: metering, transition, testing, contingency)	RWG to: <ul style="list-style-type: none"> <li>• Assign actions &amp; deliverables to focus groups</li> <li>• Receive content, analysis and/or recommendations from focus groups</li> </ul>

<sup>14</sup> Details of the readiness working group, including the terms of reference, are at: <http://aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement/Readiness-Workstream/Readiness-Working-Group>

## 4.5 Coordinating market readiness activities

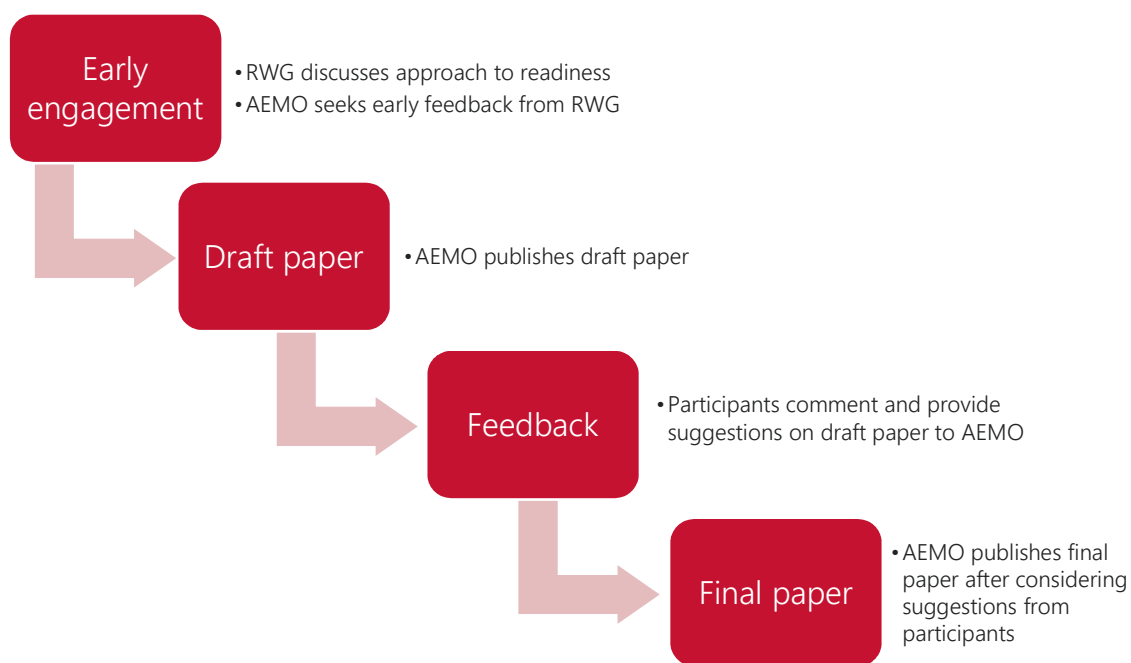
AEMO and the RWG have a significant role in coordinating the detailed SMS and GS readiness activities that need to be delivered as part of this strategy. These activities particularly relate to transition and cutover, industry testing and market trials and readiness reporting. Each of these areas will be the subject of a detailed plan developed by AEMO and participants (see sections 3.3 and 0). AEMO and participants will then coordinate the market readiness activities in accordance with the relevant plans.

## 4.6 Developing market readiness papers

A key element of the RWG's scope is assisting AEMO in the development of the market readiness strategies and plans. Figure 5 sets out the four-stage approach to preparing these papers and Table 5 provides indicative timing. Broadly, the document development process is a two-stage engagement process. Firstly, AEMO will discuss key aspects of a paper with the RWG before producing a draft paper. Secondly, the RWG will provide AEMO with feedback on the draft paper. AEMO will then consider the feedback and finalise the paper.



**Figure 5 Approach to developing market readiness papers**



**Table 5 Indicative timing for preparing market readiness papers**

Item	RWG engagement	Draft paper	Consultation	Final paper
<b>Market readiness strategy</b>	Jun 2019	30 Aug 19	3 weeks	15 Nov 19
<b>Industry test and market trial strategy</b>	Jul 2019	30 Sep 19	4 weeks	30 Nov 19
<b>Transition and go-live strategy</b>	Jul 2019	30 Sep 19	4 weeks	30 Nov 19
<b>Industry readiness reporting plan</b>	Sep 2019	31 Oct 19	3 weeks	15 Dec 19
<b>Metering service provider accreditation update plan</b>	Oct 2019	29 Nov 19	11 weeks	15 Mar 20

## 4.7 Managing readiness issues and risks

Throughout the 5MS and GS project, AEMO and the industry will need to manage readiness-related issues and risks. These may be raised by AEMO or the industry on an ad hoc basis or identified through formal risk assessments. Risks and issues may also become apparent through readiness reporting.

Readiness-related risks and issues will be captured in the 5MS/GS program's Industry Risks and Issues Register which is maintained by the PCF. The Register:

- Contains all 5MS and GS industry risks identified by stakeholders through the forums, working groups and other sources
- Is regularly reviewed by the PCF
- Is published on AEMO's website.<sup>15</sup>

RWG (or its subsidiary focus groups) can:

- Escalate risks/issues to the PCF for inclusion on the Register.
- Be assigned actions to carry out by the PCF

The PCF manages and AEMO administers changes to the register by:

- Adding, reviewing and closing issues and risks
- Assigning actions to mitigate issues and risks
- Escalating issues and risks to the Executive Forum where appropriate.

### 4.7.1 RWG's role in managing readiness risks and issues

New readiness risks and issues identified by the RWG or its subsidiary focus groups will be escalated to the PCF for inclusion in the overall Industry Risks and Issues Register.

In managing risks and issues, the PCF may assign actions to the RWG or its focus groups to carry out.

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<sup>15</sup> The 5MS/GS industry risks and issues register is at: <https://aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement/Program-Management/Program-Consultative-Forum>

# Glossary

This document uses many terms that have meanings defined in the National Electricity Rules (NER). The NER meanings are adopted unless otherwise specified.

<b>Term</b>	<b>Definition</b>
5MS	Five-minute settlement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
B2M	Business to market i.e. business to AEMO transactions
Cutover	System implementation event
DNSP	Distribution network service providers
GS	Global settlement
Industry testing	Informal, uncoordinated testing by participants in AEMO's IT environments
Market trials	Formal, industry coordinated test activities between participants' and AEMO's IT environments
MDFF	Meter data file format
MDMF	Meter data management format
MDP	Metering data provider
MP	Metering provider
MSP	Metering service provider
MSATS	Metering, settlement and transfer solution
NEM	National electricity market
NER	National electricity rules
PCF	5MS/GS program consultative forum
RWG	Readiness working group
SWG	Systems working group
Transition	Process of shifting from current to future operating state
UFE	Unaccounted for energy